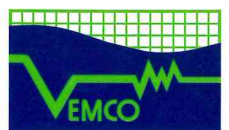
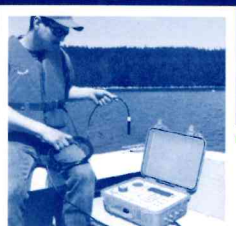
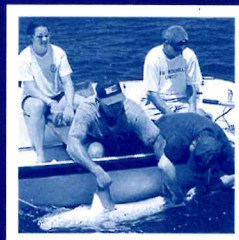
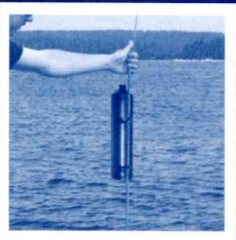


Transmitter Specifications

Underwater Acoustic Telemetry Fish Tracking and Monitoring Equipment



Important Notice for VEMCO Customers

VEMCO users must configure their receivers with a proper Code Map in order to detect their tags as well as tags of their collaborators or other researchers.

Configuration with the wrong map MAY result in lost detection data.

MAP-113 is the current standard world wide VEMCO code map for **69kHz receivers**.

MAP-413 is the current standard world wide VEMCO code map for **180kHz receivers**.

Please note: VR2 receivers cannot be upgraded to MAP-113. MAP-110 continues to be the standard map for VR2 Receivers. For users with a combination of VR2s and VR2Ws, please ensure your VR2s are set to MAP-110 and VR2Ws to MAP-113 unless otherwise directed by your VEMCO sales representative. MAP-113 is configured to detect all existing VEMCO tags in addition to the new tags being introduced by VEMCO. (Note MAP-113 does not detect R256 tags as these are no longer sold by VEMCO). Please consult our on-line support pages for help in configuring your Receiver Map. (<http://www.vemco.com>)

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DOC-5295-05

AMIRIX Systems Inc.
Statement of Limited Warranty

AMIRIX Systems Inc., doing business under its trade name VEMCO, provides a one (1) year warranty period for the Product from date of shipment.

VEMCO warrants that on the date of shipment all Products manufactured by VEMCO are free from defects in material and workmanship under normal use and service. This warranty applies to the components necessary for equipment upgrades, i.e. the VR1/VR2 to VR2W upgrade. With respect to transmitter products, while VEMCO is able to predict battery life with some certainty, VEMCO cannot guarantee that these Products will remain functional while submerged for extended periods of time. This warranty does not apply to:

- a) any equipment, materials or design supplied by Buyer or a third party.
- b) re-battery services provided by VEMCO.
- c) Products for which VEMCO has not received payment.
- d) problems that results from: external causes such as accident, abuse, misuse; servicing not authorized by VEMCO; usage not in accordance with Product instructions; failure to follow the Product instructions or failure to perform preventative maintenance; usage of accessories, parts or components not supplied by VEMCO.
- e) normal wear and tear and the need for regular maintenance.

This warranty shall survive delivery only on the conditions and subject to the limitations set forth below.

Warranty and Notice Periods

To receive a warranty remedy for a Product, Buyer must contact VEMCO's Customer Support Department during the warranty period to receive the Return Material Authorization ("RMA") instructions. Each defective Product returned for warranty remedy must be shipped at the Buyer's expense according to the RMA instructions and must include reasonable proof that the claimed defect is due to a matter embraced within the warranty set forth above and that such defect did not result from any act or omission of Buyer, including but not limited to any failure to operate and maintain the Product in accordance with VEMCO's applicable written instructions.

Remedy

VEMCO's liability, and the Buyer's exclusive remedy under this warranty, as to a defect in material or workmanship, is limited to the repair of such defect in the accessory, equipment or part in which the defect appears or, at VEMCO's option, to the replacement of such accessory, equipment or part with a similar item free from defect. As to any item repaired by VEMCO or furnished as a replacement by VEMCO, VEMCO's liability and the Buyer's exclusive remedy to the repair or replacement of such item for any further defect in material or workmanship, provided VEMCO receives written notice at Halifax, Nova Scotia, of such further defect from BUYER within ninety (90) days after the repaired or replaced item is shipped to BUYER and provided that BUYER returns same to VEMCO as provided under "Warranty and Notice Periods".

Returned Items

All repairs, replacements and corrections described above shall be performed by VEMCO at its plant at Halifax, Nova Scotia, or at such other place as may be mutually agreeable, and with reasonable care and dispatch in order that the Product, accessory, equipment or part will not be kept out of service longer than necessary. Return to BUYER of a repaired, replacement, or corrected accessory, equipment, part or Product shall be at VEMCO's expense. Title to and risk of loss of the Product, accessory, equipment, or part returned to VEMCO pursuant hereto shall at all times remain with the BUYER, except that title to a returned accessory, equipment, part, or Product shall pass to VEMCO concurrently with shipment to BUYER of any item furnished by VEMCO to BUYER as a replacement therefor. VEMCO shall have only such responsibility for any Product, accessory, equipment, or part owned by the BUYER and in the possession of VEMCO as is chargeable by law to a bailee for hire, but shall not be chargeable for loss of use thereof.

DISCLAIMER AND RELEASE

THE WARRANTIES, OBLIGATIONS AND LIABILITIES OF VEMCO AND THE REMEDIES OF BUYER SET FORTH HEREIN ARE EXCLUSIVE AND IN SUBSTITUTION FOR, AND BUYER HEREBY WAIVES AND RENOUNCES, ALL OTHER WARRANTIES AND OBLIGATIONS OF VEMCO AND ANY ASSIGNEE OF VEMCO AND ALL RIGHTS, CLAIMS AND REMEDIES OF BUYER AGAINST VEMCO, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, WITH RESPECT TO ANY NON-PERFORMANCE OR DEFECT IN THE PRODUCT OR IN ANY OTHER THING DELIVERED UNDER THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO: ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; ANY IMPLIED WARRANTY ARISING

OUT OF COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE; ANY OBLIGATION, LIABILITY, CLAIM OR REMEDY IN TORT, WHETHER OR NOT ARISING FROM THE NEGLIGENCE OF VEMCO OR ANY ASSIGNEE OF VEMCO, ACTUAL OR IMPUTED; ANY OBLIGATION, LIABILITY, RIGHT, CLAIM, OR REMEDY FOR LOSS OF OR DAMAGE TO THE PRODUCT, FOR LOSS OF USE, REVENUE, OR PROFIT WITH RESPECT TO THE PRODUCT; OR FOR ANY OTHER DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES; AND VEMCO MAKES NO REPRESENTATION THAT THE PRODUCT WILL NOT INFRINGE ANY PATENT OR OTHER RIGHTS OF ANY PERSON AND BUYER AGREES TO INDEMNIFY VEMCO AND HOLD VEMCO HARMLESS FROM ANY AND ALL CLAIMS AND LIABILITIES WITH RESPECT TO SAME TOGETHER WITH ANY CLAIMS AND LIABILITIES WITH RESPECT TO ANY INFRINGEMENT OF ANY PATENT OR OTHER RIGHTS OF ANY PERSON ARISING AS A RESULT OF BUYER'S PRODUCTS, TECHNOLOGY, ACTIVITIES, OR OTHERWISE.

Quantity and Delivery

The delivery schedule and quantities to be delivered in the quotation are estimates and subject to change. VEMCO reserves the right to limit the quantity and/or configuration of any Product sold, or prohibit a sale altogether. With respect to data analysis and service, including but not limited to VPS, foreign ID analysis and investigations, ID verification, etc, VEMCO can only deliver service related to information provided/retrieved from VEMCO equipment. VEMCO will use commercially reasonable efforts to meet the delivery schedule, provided however, that VEMCO will not be liable under any circumstances for its failure to meet such delivery date(s). VEMCO will give Buyer reasonable notice that the delivery date and/or quantity to be delivered will change. All shipments are FOB Halifax, Nova Scotia, Canada. Buyer may cancel this order in whole or in part, upon reasonable notice to VEMCO; however, Buyer shall pay VEMCO the Reasonable Cost it has documented as having been incurred in the performance of this order.

Grant of License

VEMCO grants to the Buyer a limited, personal license, with no right to sub-license, to use the Intellectual Property ("IP") and Embedded Software in the manner set out in the Documentation. The Embedded Software and IP are not sold to Buyer. All property rights, including Intellectual Property Rights, remain with VEMCO. All rights related to the IP and/or Embedded Software not expressly licensed to the Buyer are reserved to VEMCO. BUYER shall not permit any person other than BUYER and its employees to use or make use of the Embedded Software and/or IP. BUYER shall not, and shall not permit any third part to, modify, adapt, translate, reverse engineer, decompile, disassemble, or create derivative works based on the Embedded Software and/or IP. This license is assigned to the Product with which you have acquired the Embedded Software and/or IP. If the Product purchased is a Transmitter product, be advised that the license term is equal to the operational life.

Export

Products and associated materials supplied or licensed hereunder may be subject to various export laws and regulations. It is the responsibility of Buyer to comply with all such laws and regulations.

General Conditions

- (a) These terms and conditions shall state the entire agreement between the parties and supersedes all prior communication, oral or written, between the parties relating to this Agreement. No amendment or modification of this Agreement shall be made except by an instrument in writing signed by both parties. If BUYER issues a purchase order or other document purporting to relate to this Agreement, such document shall be considered to be for BUYER's internal use only, and the provisions contained therein shall not amend this Agreement except as may be expressly agreed by VEMCO in writing.
- (b) Invoices not paid when due shall bear interest at the rate of 1% per 30 days of delinquency or fraction thereof, provided that if the amount of such late payment charge exceeds the maximum permitted by law for such charges, such charge shall be reduced to such maximum amount.
- (c) Neither party shall be responsible for delays or failures in performance resulting from acts beyond the control of such party. Such acts shall include, but not be limited to, acts of God, fire, flood, earthquakes, riots, acts of war, epidemics, governmental regulations, direction or request, communication or power line failures, loss of data, strikes or walkouts or any inability to obtain materials, equipment or transportation.

Negotiated Agreement

It is fully understood by the parties that the price of the Product and other mutual agreements of the parties set forth in this agreement were arrived at in consideration of this warranty, SPECIFICALLY INCLUDING THE WAIVER, RELEASE AND RENUNCIATION BY BUYER SET FORTH ABOVE.

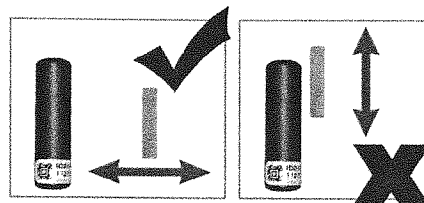
TAG SPECIFICATIONS

TAG CODING SCHEME

This model of tag contains a microprocessor to control the ping width and ping interval during acoustic transmissions. When activated, the tag pings briefly to indicate it is powered and then transmits with a very short delay time for a few minutes to allow for tag identification. It then enters its normal mode of operation as programmed at the time of manufacture and will continue until the tag is deactivated or the battery is expended.

TAG ACTIVATION

The V7, V8, V9, V13, and V16 tag models are activated (turned on) by removing the magnet and deactivated (turned off) by replacing the magnet. The larger tags have a white bar or a groove indicating the necessary location of the magnet for deactivation. Do not tap the tag:



Always move the magnet away from (activate) and towards (deactivate) the tag as shown in the picture on the left. Don't slide the magnet off the end of the tag as it could cause the tag to not activate properly.

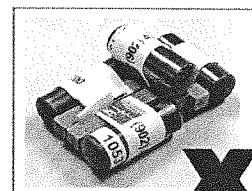
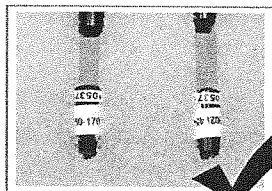
TIP: Activate the tag and check that the receiver(s) being used with it is setup correctly identify the tag before deployment.

TAG STORAGE

This model of tag contains an internally fitted battery.



WARNING: DO NOT store tags with the magnets close to each other. If the magnets are close together the tags may activate and consume the battery life. Ideally, store the tags in the foam trays as they were shipped.



WARNING: Do not store the tag in a freezer or it may be damaged. Vemco recommends storing tags dry (not in solution) at room temperature and out of direct sunlight.



DANGER: Do not dispose of tag in fire, attempt to recharge, or open package – personal injury may result!

TAG SHELF LIFE

Tag models should be activated after delivery within the time period listed below.

V7-1x models = 1 month

V9-2x models = 6 months

V16-4x models = 24 months

V7-2x models = 2 months

V9-6x models = 2 months

V16-5x models = 15 months

V7-4x models = 2 months

V13-1x models = 9 months

V16-6x models = 24 months

V8-4x models = 3 months

V16-1x models = 9 months

V9-1x models = 3 months

V16-3x models = 3 months

TAG DEPLOYMENT

The acoustic transducer is located in the end of the tag opposite the serial number. The acoustic transducer **MUST** be kept free of any harness attachments or air pockets for peak acoustic performance.

The external packaging material of transmitters (tags) are of either titanium or epoxy and silicone polymer combinations, and were designed to perform within an environment of relatively neutral (~7pH, low enzymatic affects) conditions. Therefore, transmitters with pressure sensing capabilities are **NOT** recommended for internal gastric deployment within test animals for extended periods of time. Researchers are required to follow animal care guidelines pertaining to their target species relative to the corresponding study site(s).

TAG LABEL EXPLANATION

The label on each tag contains the identification (ID) number and the serial number (SN). The complete transmitter ID, consisting of the code space plus the ID number, is listed on the Tag Specifications page. The serial number is also located in the 2D Aztec barcode.



This barcode offers researchers the ability to quickly scan the tag's serial number into a database. To use this feature, the barcode scanner must be Special Focus (SF) to read the tiny barcodes. We recommend the Honeywell 4600gSF or the more rugged Honeywell 4800iSF.

SENSOR TAG INFORMATION (CODED AND CONTINUOUS TYPES)

VEMCO Tags may be equipped with either a temperature sensor (e.g. the V16T) or a pressure sensor (e.g. the V16P) or an accelerometer sensor (e.g. the V9A) or both temperature and pressure sensors (e.g. the V16TP) or both accelerometer and pressure sensors (e.g. the V9AP) if specified in your order. These sensors transmit data on either of 2 channels as described in the attached tables. Additional information unique to each tag in your order is given in the attached tables.

* Applies to Accelerometer transmitters only: The Transmit Ratio determines how many consecutive 'A' or 'P' transmissions will be sent. Example: Transmit Ratio on A = 2, P = 1 would cause the tag to send ID codes in this sequence: A,A,P,A,A,P...

This sheet provides a summary of the transmitters contained in this order. The Code Space Summary is intended to assist in determining the proper Code Map required for your receivers to detect these tags. Please see www.vemco.com for more information regarding Code Maps.

Customer: MARINE TECHNOLOGY CENTRE
Sales Order Number: 15508
Total Number Of Tags In order: 6
Total Number Of Coded Tags: 6
Total Number of Continuous Tags: 0

Code Space Summary*

| Tag Family | Coding Reference | Number of Type in this Order |
|---|------------------|------------------------------|
| V16-4x | A69-1601 | 6 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Other (see Tag Spec Sheets for more detail) | | |

* Note: This table provides a summary of the types of coding references used in this order. If the order includes S64k sensor tags (which use both an S256 code and a R64k code) then number of code spaces in the summary will be greater than the number of tags in the order.

Customer Name: DALHOUSIE UNIVERSITY
 Sales Order No.: 15508
 Date: 01-Jul-13

| INTERVAL | | STATUS | Time dy, hr, min, sec | Power (L/H) | Fixed Delay | Min (sec) | Max (sec) |
|----------|-----|--------|--------------------------|----------------|----------------|--------------|--------------|
| STEP 1 | ON | | 1825 00:00:00 | L & H | No | 850 | 950 |
| STEP 2 | OFF | | 3650 00:00:00 | | | | |
| STEP 3 | OFF | | 0 00:00:00 | | | | |
| STEP 4 | OFF | | 0 00:00:00 | | | | |

When finished LOOP back to step 2

OTHER CODED TAG SPECIFICATIONS

(RANGE TEST TAGS, SYNCHRONIZATION TAGS, REFERENCE TAGS, ETC.)
 Information unique to each tag in your order.

| Tag Family | Serial No. | ID Code | VUE Tag ID (Freq-Space-ID) | Freq (kHz) | Precise Delay | Est. Tag Life (Days) |
|------------|------------|---------------|-------------------------------|---------------|------------------|-------------------------|
| V16-4x | 1166313 | 65300 / 65301 | A69-1601-65300 | 69 | NO | 1825 |
| V16-4x | 1166314 | 65302 / 65303 | A69-1601-65302 | 69 | NO | 1825 |
| V16-4x | 1166315 | 65304 / 65305 | A69-1601-65304 | 69 | NO | 1825 |
| V16-4x | 1166316 | 65306 / 65307 | A69-1601-65306 | 69 | NO | 1825 |
| V16-4x | 1166317 | 65308 / 65309 | A69-1601-65308 | 69 | NO | 1825 |
| V16-4x | 1166318 | 65310 / 65311 | A69-1601-65310 | 69 | NO | 1825 |

**** Note:** Tags are custom programmed to have two ID codes.
 The (Even number ID) is Low power the second ID (Odd number) is transmitted at High power.